

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



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Autumn

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## DO YOU KNOW?

Most snakes are good swimmers.

Avocados yield an oil which can be used in cosmetic lotions and soaps.

In England an automobile is registered when sold, and carries the same license throughout its career.

People are inclined to swallow pleasant tasting foods quickly, experiments in eating have shown.

Fires in anthracite coal mines sometimes seem to occur from accumulated heat that starts at fairly low temperature.

American Indians have been called second only to the Chinese, among living peoples, in their feeling that beauty is important in everyday living.

A boulevard in Glasgow, Scotland, is the scene of recent archaeological discoveries—a very large wooden circle, or temple, and 53 burials of the stone and bronze ages.

About four generations before the Trojan War, the city of Troy suffered an earthquake and almost complete destruction, yet there is nothing on record about this disaster.

Bakers judge the flavor of bread mainly by smell.

About half of the brain abscesses result from chronic running ear.

A sprinting fox can run a little faster than the fastest record by man.

Sewing needles and nail heads were often made of gold, by prehistoric South American Indian tribes.

A plant patent has been granted on a hardy climbing yellow rose, which can be grown in New England.

By means of yeasts and bacteria, domestic cane syrups can be given the rum flavor that makes Barbados molasses popular.

Racing cheetahs—hunting leopards—can outdistance greyhounds in short races, but have not the dogs' staying power.

The crepe myrtle's botanic name is *Lagerstroemia*, in honor of an eighteenth century shipping magnate, Magnus von Lagerstrom, who helped the great botanist Linnaeus to obtain plants from Asiatic countries.

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GENERAL SCIENCE

# Cancer May Spread in Body By Fragments in the Blood

## National Academy of Sciences Meets and Hears of New Hormone, Giant Cyclotron, and Medical Advances

A NEW picture of how cancer may spread by the blood from one part of the body to the other was presented by Drs. A. Gordon Ide and Stafford L. Warren of the University of Rochester and Strong Memorial Hospital at the meeting of the National Academy of Sciences in Rochester, N. Y.

Color moving pictures showed fragments of cancer apparently drifting into a blood vessel in a rabbit's ear. Such fragments of cancer, living and dead, probably drift into the blood in this way in far greater numbers than has previously been supposed, the Rochester scientists said.

The pictures possibly explain one method for the spread of cancer from one organ of the body to another. The blood travels to all parts of the body and is carried a good part of the way through a network of large, thin-walled veins. These thin walls are often broken by very slight injuries. Such a break in a vein as it traveled through a cancer would provide the chance for the cancer fragments to enter the blood and be carried to some distant organ.

### Dreaded Feature

This spread of the disease, known medically as metastasis, is one of the most dreaded features of malignant tumors. It is the imperative reason behind the drive for early diagnosis and early treatment of cancer. The surgeon can cut out a single cancer or tumor, can even in some cases remove one entire organ that is cancerous. X-ray or radium treatment can in many cases destroy cancer of one region. When, however, the cancer has had a chance to spread to many organs or to indispensable ones, the outlook for the patient is hopeless.

The pictures which today showed one possible method of this dangerous spread of cancer were made through a transparent double window of cellulose acetate film placed in the rabbit's ear. A fragment of rabbit skin cancer was transplanted under the outer window. Through the window, with the aid of

microscopes, the scientists were able to see the tiny blood vessels grow up, around and into the growing cancer. Twice they observed a large blood vessel with an opening growing at the edge of the cancer. In addition they were able to obtain a color moving picture record of a fairly large blood vessel in such state that blood serum, red blood cells and, apparently, cancer fragments could wash in and out with ease.

Beginning stages of animal life have been successfully grown outside the body of the mother, in a circulating solution

of nutrients, simulating conditions of nature. This new kind of "bottle baby" was described by Prof. J. S. Nicholas of Yale University.

Rat embryos were the materials used in the experiments. Embryonic tissue has been grown in glass vessels many times, but without a circulating medium to bring it food and take away waste products, development is checked. In Prof. Nicholas's experiments the more favorable conditions made it possible for normal development to go on for the four most critical days in the life of an embryo, and at the same time permitted continuous observation by the scientist.

Early stages of life apparently do not demand exact duplication of natural conditions, Prof. Nicholas found. His cultures were not injured by gradual changes in temperatures between 70 and 110 degrees Fahrenheit; they could adapt themselves to changes in the acid-alkali balance of the solution and also to



### SOLD—HOUSE AND LOT FOR \$1.75

This bargain was closed back in 1969 B.C., when a woman named Amtia bought a house and lot on a canal bank, in the city of Kish, Mesopotamia, for six and five-sixths shekels. A shekel contains 25 cents worth of silver, by present standards, but in those days it had higher buying power. Richard A. Martin, archaeologist of the Field Museum of Natural History, is shown holding the clay tablet on which the real estate contract was recorded, while he points out to the museum's auditor how Babylonians used to copy the contract also on the clay envelope—handy for filing.



changes in pressure over a comparatively wide range.

Prof. Ernest O. Lawrence, the University of California's renowned atom smasher and inventor of the cyclotron atom gun, who was awarded the Comstock Prize of the National Academy of Sciences, described to the Academy a bigger and better cyclotron.

He described an instrument that can produce as many and as powerful neutrons as would be produced if several hundred pounds of radium—hundreds of times the amount of refined radium actually in the possession of science—were used to bombard a large amount of beryllium, and revealed that electrical pressures as high as 7,000,000 volts can be built up in the machine.

Used for smashing one kind of atom with atomic bullets of another kind, the cyclotron sends charged atoms or ions winging on their way at tremendous speeds by whirling them around ever faster and faster before they are released. An ingenious combination of electrically charged poles serves as the propulsive force.

Elements can be made artificially radioactive in the new cyclotron, which has been in operation for two months, in amounts comparable to several grams of radium. The medical profession has kept an interested eye on this particular development as it may some day give rise to a cheap source of the radioactive rays used in treating cancer.

#### New Hormone

A new hormone which plays an important part in digestion was reported by Dr. E. S. Nasset of the University of Rochester. The hormone has the name enterocrinin.

It does its part in helping digestion by stimulating the production of digestive enzymes or ferments and digestive juices. Dr. Nasset has extracted it from the large intestines of animals, including man, and has obtained it in the form of a white powder which can be dissolved in water and which is powerful in small doses. It is carried in the blood and was discovered in the course of surgical transplantation experiments.

#### Insulin by Mouth Nearer

The longed-for day when diabetics can take their life-preserving insulin by mouth instead of by hypodermic injection seems materially closer as a result of research reported by Drs. John R. Murlin, Lawrence E. Young and William A. Phillips of the University of Rochester.

So far, insulin by mouth has not been effective in diabetes, although many efforts have been made to produce a form of insulin for oral dosage. The difficulty has been two-fold: when insulin is taken by mouth, it may be destroyed by the powerful digestive juices; even when protected from the digestive action, the very large insulin molecule cannot pass readily through the intestinal walls into the blood. As a result of one or both of these features, the patient who takes insulin by mouth does not get enough of it into his blood to affect the high sugar content which must be reduced to normal to make life possible for him.

The Rochester scientists have found measures for overcoming both of these difficulties, so far as laboratory studies indicate. Human trials have apparently not yet been made and so the day of patients taking insulin by mouth is not

yet here, though it seems much closer.

What has been done is to combine insulin with a weak soda solution and with a weak solution of pure hexylresorcinol. This combination, when given by mouth to some dogs, reduced the blood sugar in four-fifths of the trials. In other animals it reduced the sugar in only half the trials. This is encouraging but shows that more study is needed before the results can be applied in treating diabetes.

The weak soda serves to protect the insulin from digestive juices by cleaning the lining of the digestive tract of the mucin normally present. The hexylresorcinol hastens absorption of insulin by lowering the surface tension. Weak acid might have the same effect as the weak soda, it was pointed out, and bile salts and saponin might have the same effect as the hexylresorcinol.

*Science News Letter, October 30, 1937*

#### PUBLIC HEALTH

## Forecast a Check in Rising Tide of Mental Diseases

### Sanitation of Mental Environment Urged to Aid Health Of Mind as Physical Sanitation Has Reduced Typhoid

**A** CHECK in the 15-year-long increase in mental disease in this country and a decrease in cases was forecast by experts at the meeting of the American Public Health Association in New York.

The peak in the upward swing of mental disease may have already passed, Dr. C. M. Hincks, general director of the National Committee for Mental Hygiene, said. Figures for mental disease prevalence based on hospital admissions are unreliable, he explained. The tremendous improvement in facilities for treating mentally sick persons at hospitals has encouraged patients and their families to go to these hospitals in increasing numbers. But that does not mean, and there are no figures to show, Dr. Hincks said, that the total number of mental cases is increasing today.

In spite of this encouraging picture, Dr. Hincks said that 78,000 additional beds for the treatment of mental disease are required in the United States.

The outlook for decrease of mental disease is splendid, he said, because more and more physicians are being trained in psychiatry and more and more children's doctors are alive to the importance

of guarding against mental disease at early ages.

Further reduction of mental disease may be brought about by sanitation of the mental environment in which people live. This new method of attacking mental disease was stressed by Dr. Henry B. Elkind of Boston. A sanitary physical environment has reduced cases of disease such as typhoid fever by reducing the chances of exposure to typhoid germs in food and water. Cleaning up the mental and emotional environment by relieving the stresses and strains that lead to mental breakdown may accomplish the same conquest of mental disease. To do this, scientists must study mental disease in the mass, as epidemic diseases are studied. The locality of the majority of patients, their marital state, occupation and birthplace may give valuable clues to causes and means of preventing mental disease, Dr. Elkind explained. Health officers should study mental disease from these angles, just as they study the location of cases and the sanitary environment including food and water supplies in an epidemic of typhoid fever.

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#### DUMB—AND NOT BEAUTIFUL

*This animal may not have worn in life that unfortunate expression, at once sad and "dumb," that the artist has given him in the restoration. But of the outlines of his body scientists are at last fairly sure, since the Field Museum of Natural History acquired a nearly complete skeleton recently in South America. The creature bears the heavy name of Homalitherium. It was the size of a smallish ox, and lived in Miocene times.*

PUBLIC HEALTH—CHEMISTRY

## Four Dread Diseases May Be Conquered By the Chemist

### Filterable Viruses Are Chemicals, Not Bacteria; Infantile Paralysis and Cancer to Be Wiped Out

A WORLD free of four dread diseases and possibly a fifth as the result of work not by physicians, but by physical chemists, was boldly pictured by Dr. The Svedberg, world-renowned Swedish Nobel prize winner.

Mankind is on the verge of discovering how to dispose of yellow fever, infantile paralysis, foot-and-mouth disease, influenza and possibly cancer, Dr. Svedberg, in the United States to lecture as the first speaker on the Swedish Tercentenary Lecture program, asserted in an interview at the Princeton Club.

Filterable viruses, organisms so small that they are invisible beneath the most powerful microscopes in existence and that they pass easily through the finest porcelain filters, are certainly the causes of the first four ills and may be the cause of the fifth.

Filterable viruses have been found, he

asserted, to be gigantic molecules of protein and not bacteria as formerly thought.

One filterable virus, that responsible for tobacco mosaic, a disease highly destructive to tobacco plants, has already been isolated and its molecules studied by means of the ultracentrifuge, which was invented by Dr. Svedberg, and similar apparatus.

The ultracentrifuge, which consists of a tiny rotor driven by a blast of hydrogen and can rotate millions of times a minute, has enabled Dr. Svedberg and his colleagues to disentangle some of the complicated reactions occurring in substances found in the body and have enabled them to secure exact information on the sizes and shapes of molecules. Such knowledge, the chemist explains, is invaluable in working out methods of treatment.

"It is obvious," he concluded, "that

we may expect soon to discover powerful weapons to fight illness and death through work along these lines."

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GENERAL SCIENCE

## "Industries Without Touch Of Science Would Never Be"

"YOU may bury our bodies where you will, our epitaphs are written in our scientific journals, our monuments are the industries which we build, which without our magic touch would never be."

The scientists of the world are speaking, in the person of Dr. Harold C. Urey, Columbia University chemist, whose discovery of heavy hydrogen won for him the Nobel prize. His confession of faith, delivered at the dedication of the Mellon Institute recently, will be affirmed by his fellow workers in the great and unselfish guild of those who puzzle out the fundamental facts of nature and of man.

To Dr. Urey science in its emotional aspects is in many ways a religion. And it is one of intense activity and not words. Says Dr. Urey:

"Money is not an object at all, but only a medium of exchange for the real objectives.

"The real purpose of our endeavors is to contribute something somewhere and at some time to the sum of human satisfaction, as man lives for a brief span of time on this continent.

"Our object is not to make jobs and dividends. These are the means to an end, mere incidentals.

"We wish to abolish drudgery, discomfort and want from the lives of men and bring them pleasure, comfort, leisure and beauty. Often we are thwarted and our efforts perverted to other ends, but in the end we will succeed."

We hear much of two classes that compose our industrial civilization: Capital and Labor. To them must be added science that creates and plans and manages. Dr. Urey as spokesman for science recognizes the essential cooperation of capital and labor with science. Upon those monuments that science is building, he hopes that capital and labor will carve their names with the same pride in their work that scientists take in theirs.

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Air raids by crows and other birds are a cause of much damage to California's almond trees.

## MEDICINE

## Executive Director Named For National Cancer Council

**D**R. LUDVIG HEKTOEN of Chicago has been appointed executive director of the National Advisory Cancer Council, it has been announced by the U. S. Public Health Service. This Council with the Surgeon General of the U. S. Public Health Service, who is ex officio chairman, will direct the activities of the recently created National Cancer Institute.

Congress has appropriated \$750,000 for a building and equipment for the Institute and authorized the spending of \$700,000 annually for research and other steps toward control of cancer.

"I should think that research will be given the main emphasis in the program of the Cancer Council and Institute," Dr. Hektoen said, "because the scientists who are delving into the nature and causes of cancer are leading the procession of cancer fighters."

"A most important activity of the Institute and Council will be to promote the practical application of the results of research to the prevention, diagnosis and treatment of cancer."

Dr. Hektoen brings to his new position a wealth of experience in scientific research and in the direction of such activities. He has been director of the John McCormick Institute for Infectious Diseases, Chicago, has served three times as chairman of the medical division of the National Research Council, and is at present chairman of the National Research Council. It was under his direction at the McCormick Institute that Drs. George F. and Gladys H. Dick developed their test for scarlet fever susceptibility and the toxin for vaccinating against the disease which is now being used successfully in the struggle to conquer this childhood plague.

*Science News Letter, October 30, 1937*

## PHYSIOLOGY

## Natural Craving For Vitamin Has Been Discovered in Rats

**A** CRAVING for a vitamin, so strong that it "seems to be one of the strongest of all the cravings," has been discovered by Drs. Curt P. Richter, L. Emmett Holt, Jr., and Bruno Barelare, Jr., of the Johns Hopkins Hospital.

This particular craving exists in rats, but the scientists do not know yet whether other animal species have the same craving, they state in their report (*Science*, Oct. 15).

The particular vitamin which rats crave is B<sub>1</sub>, sometimes called the appetite stimulating vitamin. Excessive appetite or craving for special food stuffs exist only for three other substances, so far as science now knows. These three are common salt, phosphorus and calcium, the latter two necessary to build bones. The craving for vitamin B<sub>1</sub> seems to be even more powerful.

Both normal rats and those deprived of the vitamin show a great appetite for dried baker's yeast, which contains the vitamin. The craving showed up even

more strongly when the animals were allowed to drink a solution of the pure vitamin in water. Once these animals, previously deprived of the vitamin, had tasted it, it was hard to stop them from drinking it.

"Efforts to remove the bottle were met with fierce resistance," the scientists report. "The bottle was held tightly with both paws and even with the teeth. By reaching far up into the bottles the rats made an effort to obtain every remaining drop of the vitamin."

Taste and odor both aroused the animals' interest. The rats found the bottles containing the vitamin solution immediately even when as many as 12 other containers filled with different foods or liquids were present in the cage at the same time.

The liking for the appetite vitamin evidently depended as much on its appeal to taste and smell as on any knowledge of its good effects on health gained by previous experience. This opens up

the question of the roles played respectively by experience and by the deeper biologic factors dependent on the taste mechanism, the scientists point out.

Existence of the craving, they suggest, should help in behavior studies by giving a new reward of powerful influence.

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## PSYCHOLOGY

## Propaganda Is Futile Unless Listeners Are Ready

**I**N this autumn when war is reaping grim harvest of maimed and dead in Europe and in Asia and when a large portion of the globe seems involved in a struggle of Fascist against Communist, Democratic forms of government being gravely endangered, attention should be turned upon the propagandist.

Powerful as are the bombing planes of the military forces, mightier still are the arts of the propagandist.

A word of cheer for those who unduly fear his terrifying influence, and another of warning for those who may allow themselves to be influenced by him, comes from the meeting of the American Psychological Association.

The agitator and his best propaganda are futile unless the population upon which he is working are already attuned to receive his message, Dr. George W. Hartmann, of Teachers College, Columbia University, told a special session of that meeting discussing the psychology of political attitudes. He reported conclusions from an actual field laboratory experiment at the polls.

"The most inspiring and convincing of pacifist publicity material distributed on the campus of West Point or Annapolis is just so much wastepaper," Dr. Hartmann said.

"Communist or fascist agents could flood America with pretty girls, gifted orators and enthusiastic demonstrations in 1937, but the effect would certainly be negligible.

"The situation is essentially the same with regard to the acceptability of certain types of leadership. The ablest and finest candidate with a splendid program is striking his head against a stone wall if he is too far ahead of his constituency. They will have none of him."

Propagandists are already subtly attempting to enlist American public opinion in a program of war; they are attempting to make us take sides in the fascist-communist argument.

Psychological experiments seem to indicate that at present in most communities the arguments would fall on deaf ears.

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## METALLURGY

# New Electric Heat Process To Make Magnesium Very Cheap

**Metal Made By New Method Is Not Explosive, Is Strong And Light, and Costs Only Half What Aluminum Does**

**P**RODUCTION of the extremely lightweight silver-white metal, magnesium, at only half the cost of heavier and more familiar aluminum is possible by a new "electrothermic" method that promises a virtual industrial revolution through distilling many metals from their ores.

This impending commercial development was revealed by Dr. W. S. Landis, vice-president of the American Cyanamid Company of New York City, in a technical paper before the Electrochemical Society in St. Louis.

Magnesium metal by the new process is actually of higher strength and better quality than that made by the old electrolytic process and production in considerable volume in several widely scattered parts of the world is expected.

Already magnesium alloyed with aluminum and copper is being used in aircraft and other construction where light weight is an advantage. With the lower costs of its electrothermic distillation from the plentiful ore, magnesite or magnesium carbonate, it may compete seriously with aluminum as the material used in all sorts of construction where weight counts. Magnesium metal is 1.7 times the weight of water, whereas aluminum is 2.4 times.

Because powdered magnesium (flash-light powder) explodes with a brilliant light, the metal is thought by some to be inflammable. Dr. Landis reassured his audience of chemists that this is not true if the pieces are reasonably thick.

## Magnesium Pipe

He smoked a pipe made of magnesium metal as a demonstration.

Zinc can be recovered from ore by distillation or electrothermic process. So can cadmium. Mercury and arsenic have long been extracted by distillation and the processes used have not needed improvement by recent research.

Dr. Landis predicted that it will be quite feasible to produce calcium, strontium and barium, all rare in the metallic form, by use of the electric distillation furnace. Zinc and magnesium have

been produced semi-commercially by the new processes.

The magnesium process begins with the calcining of the magnesite, a carbonate, to a dead burnt oxide. Heated by an electric furnace to temperatures around 2,200-2,300 degrees Centigrade, the magnesium oxide mixed with carbon in the form of anthracite coal or coke, gives elemental magnesium vapor and carbon monoxide gas. Under-cooled hydrogen gas is played on the magnesium vapor stream as it leaves the furnace and the sudden cooling produces magnesium powder, which finally is redistilled to metal of high purity. Since the powdered metal and the gases used are all highly explosive when mixed with air, the whole process must be conducted in tightly closed furnaces.

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## MEDICINE

## Colds Are Unscientific; Vaccines Help Some

**T**HE common cold is what you might call unscientific. Whatever else you may and probably do call it, its unscientific aspects are what count when it comes to avoiding or getting rid of a cold.

The exact cause of colds has not yet been learned (one of their unscientific features) and consequently no vaccine that can be counted on for sure protection against colds has yet been devised. Dr. Leverett D. Bristol, health director of the American Telephone and Telegraph Company, told members of the American Public Health Association at their recent meeting. Because colds cause so much time to be lost from work, Dr. Bristol has gone pretty thoroughly into the cold prevention angle.

The most that can be said for vaccines, he found from his surveys of companies that had used them, is that they seem to cut down the severity, duration and complications of respiratory diseases. Apparently they do not lessen the actual number of colds. The reason for this goes back to the unscientific aspects of

the cold. Only recently scientists have discovered a common cold virus, but they are still uncertain as to whether this virus is the sole causative agent of colds. Germs of the bacteria class seem to play a part, mostly in making worse the virus-caused cold by setting up other infections in the nose and breathing apparatus. It is in fighting these secondary infections that the present vaccines help.

Another unscientific feature about colds is that for the most part they are diagnosed, treated and reported, if at all, by laymen and there are no accurate statistics as to their frequency and no control records of results obtained with different forms of treatment and prevention. Consequently whatever apparent results in preventing colds have been achieved are mostly matters of opinion without much scientific, factual basis.

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## PHYSIOLOGY

## "Pep" Drug Found Useful In Relaxing the Eyes

**O**CULISTS will soon be dropping a new drug into eyes to help relax them preparatory to fitting glasses. It is benzedrine, the same potent and dangerous chemical whose "pepping up" effect is sometimes indulged in by over-worked business men and students cramming for exams.

Dr. S. Judd Beach of Portland, Me., told the American Academy of Ophthalmology and Otolaryngology that weak solutions of the drug speed up and shorten the action of drops of atropine and other drugs that relax the eyes. The benzedrine hastens the return of the eyes to normal after the drops have been used.

Pain in the sinuses may cause a "gone to sleep" feeling around the ears and down the side of the neck. Drs. Olof Larsell and Ralph A. Fenton of the University of Oregon Medical School, Portland, Ore., reported that pain in the deep sinus structures at the back of the nose shrinks the blood vessels in the skin of the ear canal, the mastoid region and the side of the neck. This interferes with circulation and is transmitted to the brain in much the same way as pain from impaired circulation in the leg when the foot "goes to sleep."

These doctors also demonstrated that blood-destroying streptococci from the sinuses can travel along lymphatic channels into neck glands and simulate rheumatism, sometimes eventually causing serious lung inflammation.

*Science News Letter, October 30, 1937*

## PHYSIOLOGY

**Whisker Crop Growth Is Faster in Hot Weather**

**T**HE WHISKER crop grows faster in hot weather. This is not hearsay. Scientific evidence, carefully gathered hair by hair, appears in *Science* (Oct. 15). The crop report was made by Dr. Paul Eaton of the Florida State Board of Health and Mary Wright Eaton.

The evidence was gathered in an experiment involving "the measurement of the hair shaved from the same part of the face at approximately the same hour and with the same technique every day for one year," the report states. The subject of the experiment is described as "P. E., florid male, aet. 59."

"The crop harvested with one stroke of a straight razor from an area of about one square inch on the right cheek immediately in front of the ear, was washed free from soap, dried and mounted," the report states. "On each slide selected for measurement 100 hairs chosen at random were measured with an ocular micrometer."

(The micrometer is an instrument for accurate measurement of minute distances.)

"Each daily value was linked with the average temperature of the preceding day as furnished by the U. S. Weather Bureau."

The report concludes with a table which shows that as the mean monthly temperature rose to 65 degrees Fahrenheit and over, the average hair growth increased appreciably, and as the temperature declined, the hair growth also declined.

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## MEDICINE

**Food Allergy Is Real, Not Imagined Ailment**

**H**ELP is needed for an increasing group of emaciated men, women and children who are suffering from a new kind of starvation amidst plenty. These are the victims of food allergy—the people who cannot eat fish or tomatoes or wheat or eggs or milk or many other common and necessary foods.

These people are not just finicky and the trouble is not in their heads. They are supersensitive to one or more of these foods and their ailment is just as real, and sometime more serious, as that of their fellow-allergics, the hay feverites whose noses are supersensitive to pollens.

Nearly two-thirds of the population has food allergy to some degree, Dr. Walter Alvarez of the Mayo Clinic told members of the American Public Health Association. About 2 per cent. of the population suffer from allergy to a severe extent.

These people need help, from bakers and food manufacturers, in getting enough to eat—enough food that does not contain the substance which poisons them. (Poisons is not a strictly medical term in this connection, but the symptoms of food allergy range from hives and headache to asthma and symptoms of food poisoning serious enough to kill if not quickly checked.)

Many of these people, in order not to starve, must eat large amounts of one food, day in and day out. They thus run a good chance of developing sensitiveness to this food, and so further limiting their supply of nourishment.

Bakeries are needed in large cities to supply these patients with breadstuffs containing no wheat, eggs or milk. Foods that they can eat should be available in cans and packages. Some of these must be imported, but Dr. Alvarez believes there will be a good market for such foods. An advantage of the imported foods is that because the allergic patients have not eaten them before, they are not likely to be sensitive to them.

*Science News Letter, October 30, 1937*

## INVENTION

**H. H. Maxim Invents A Submarine Silencer**

**A** FAMOUS son of a famous father, Hiram Hamilton Maxim, son of Hiram Maxim, the man who invented the gun silencer that bears his name, has just been granted a patent on a silencer for the gasoline engines submarines use when cruising on the surface.

Young Maxim, now president of the Maxim Silencer Company of Hartford, Conn., declined to make any comment on the invention, but the patent papers disclose that the silencer, located near the top of a submarine's small superstructure, is adapted for flooding quickly when the underwater boat prepares to dive.

This is necessary, it was explained, because of the danger of air pockets interfering with the boat's balance. Two sound-conducting channels, designed to absorb low-pitched sounds, such as those from the explosions of a gasoline motor, feature the device, covered by patent No. 2,093,893.

*Science News Letter, October 30, 1937*

**IN SCIENCE**

## ENGINEERING

**Oil Flooded Out of Wells By New Water Method**

**O**IL is being recovered from Pennsylvania wells that have ceased producing profitably under other methods of working by a new water-flooding process developed by Pennsylvania State College scientists.

Water under pressure is forced into oil-bearing rock formations through selected wells to weep the oil out through other wells, in the new method of "reviving" non-producing bores.

Six experts, including Dr. Kurt H. Andresen, Dr. Thomas S. Cooke and H. B. Charnbury, have been working successfully on standardization of the method for four years.

Increasing attention has been paid by petroleum engineers the world over to the job of extracting the last remnants of oil from a pool as increasing numbers of fields give out. Blasting, to break up rock formations clogging the bottoms of wells, has been successfully developed in this country, while Russian engineers have used compressed air to achieve the same result.

*Science News Letter, October 30, 1937*

## PUBLIC HEALTH

**Increase in TB Deaths Aftermath of Depression**

**A**N INCREASE in deaths from tuberculosis as a late result of the economic depression is reported by Dr. Kendall Emerson, managing director of the National Tuberculosis Association. His report is based on figures submitted by the state boards of health.

In 1936 there were 70,907 deaths from tuberculosis in the United States exclusive of New Hampshire for which figures are still unavailable. In 1935 the total tuberculosis deaths for the country (including New Hampshire) were 69,471.

The 1936 increase was anticipated, Dr. Emerson said, by tuberculosis workers throughout the country, and came after a ten-year period of decreasing annual tuberculosis death rates.

*Science News Letter, October 30, 1937*



# NEW FIELDS

## MINERALOGY

### Two New Minerals Added To List of Some 1200

**T**WO NEW and rare minerals—antofagastite and bandylite—discovered by a joint Smithsonian Institution-Harvard expedition to Chile have just been added to the list of about 1,200 known rock components.

Lichen-like greenish crusts found on rocks brought back from the district of Antofagasta, Chile, by Mark C. Bandy, leader of the expedition, were found to be copper chloride, a common substance in chemical laboratories, but never before found in nature. This mineral has been named antofagastite by Drs. Charles Palache of Harvard and W. F. Foshag of the National Museum.

Minute blue crystals, composed of boron, chlorine, and copper, never before discovered anywhere, have been named bandylite, in honor of their discoverer. Both of these minerals occur near the surface, in what miners call the oxidized zone. Antofagastite dissolves in water; bandylite is dissolved by ammonium hydroxide. Both rare minerals color a flame green.

*Science News Letter, October 30, 1937*

## ARCHAEOLOGY

### King's Letters Unfold Politics In Bible Age

**S**UPPOSE the history of our present era should somehow be lost, and scholars of the future suddenly discovered Signor Mussolini's office files. They would be awed and thrilled to read of international rivalries and maneuvering of rulers for place.

An era of ancient history has been brought to light in exactly this way through new discoveries in a city most people have never heard of. In this ruined city called Mari—in northwest Mesopotamia, now within borders of Syria—French archaeologists have dug up several thousand letters. They are letters received by King Zimri-Lim of Mari in the course of 33 years, from about 1990 B. C.

Zimri-Lim corresponded with kings all over Mesopotamia—which was the "Europe" of the early civilized world.

And the letters reveal a political situation as complex as that of today, with kings big and little, from Hammurabi down, frantically pulling wires for power. In the end, Hammurabi swallowed most of them.

This royal correspondence is a discovery that Bible scholars call vastly important for history. Little has been known about this era in Mesopotamia, which was the time of Abraham and other Biblical patriarchs. But here, at last, are historic documents written in that day and age, to help explain the Bible's brief, often cryptic, mention of kings and events.

Commenting enthusiastically on the find, Prof. W. F. Albright of the Johns Hopkins University cites chapter 14 of Genesis, with its reference to a battle of four kings against five. Future attempts to fit this chapter, which is packed with political events, into Asiatic history will be profoundly affected by King Zimri-Lim's correspondence.

New light on Canaanite language and customs is in the letters, too. No wonder Prof. Albright says "prospects of Biblical archaeology were never so bright as they are today."

*Science News Letter, October 30, 1937*

## ANTHROPOLOGY

### China's Oldest Inhabitant Called Headhunter-Cannibal

**P**EKING MAN, China's oldest inhabitant, was a headhunter who dined off the brains of his fellows half a million years ago.

This is the verdict of Dr. George Barbour, University of Cincinnati geologist, from the extraordinary fact that almost all skeletal remains of this ancient Asiatic race so far discovered have turned out to be parts of the head. Absence of leg bones or other parts of the body can only mean, Dr. Barbour reasons, that Peking Man brought heads of his less fortunate fellows into his cave and whacked them open with stone axes to remove the brain.

Pieces of one skull shattered by a sharp pointed instrument were found in one instance, scattered widely and mixed with ashes of the hearth fire—a clue which Dr. Barbour cites as supporting evidence for the theory of Peking Man's head hunting habits.

Dr. Barbour, who was geology professor at Yenching University for 12 years, has been actively engaged in much of the investigation of China's earliest human remains.

*Science News Letter, October 30, 1937*

## PHYSIOLOGY

### Bone Conduction Hearing As Good as Normal Hearing

**H**EARING by means of bone conduction, resorted to by those suffering from a certain sort of impaired hearing, can reach as high a degree of perfection as normal hearing, Dr. N. A. Watson of the University of California at Los Angeles reports (*Journal, Acoustical Society of America*, October).

Many handy suggestions for deaf people using this means of keeping in touch with the audible world were contained in Dr. Watson's report.

Bone conduction, using the bones of the head to conduct sound instead of the air inside the ear as normally occurs, works best if one's mouth is closed and one's teeth are together, but not clenched, he finds. He found that conduction through the bones of one ear gave as good results as simultaneous use of both ears.

Dr. Watson, who used a special sound chamber and test rooms for conducting his experiments, was his own "guinea pig." He conducted the experiments on himself, checking comparative ability to distinguish conversational sounds by ordinary hearing and bone conduction.

*Science News Letter, October 30, 1937*

## ORNITHOLOGY

### New Pheasant Genus Discovered in Africa

**T**WENTY-THREE years ago a brown and black feather plucked from the headdress of a native in the Ituri Forest in Africa started Dr. James B. Chapin on a search that has just successfully ended with the finding of the bird that "fitted the feather."

The strange feather belonged to no known African bird. It came from a species related to the pheasants, which are Asiatic in origin and range. After his long search, Dr. Chapin, associate curator of birds at the American Museum of Natural History, found two mounted but unclassified specimens of a bird with identical feathers in a Belgian Museum.

Recently, in the Congo jungles, Dr. Chapin's hunt was rewarded by the securing of six specimens of this bird for his museum, and an accurate knowledge of its jungle habitat. Dr. Chapin reported the long hunt and final discovery of the "Congo Peacock," as this new bird genus has been named, to the Explorers Club.

*Science News Letter, October 30, 1937*

ASTRONOMY

# Lunar Eclipse

**Not Total, But Interesting, Is Sight Scheduled For November 17, Leonid Meteors Due on the Fifteenth**

By JAMES STOKLEY

**F**OR the first time since July, 1935, an eclipse of the moon, visible over the entire United States and Canada, is on our program for the month of November. It is not a total eclipse, but is enough to make the moon look very different from its usual appearance when full. The night of November 17 is the date.

Any eclipse is caused by one body getting between a bright object and something else. The eclipse of the sun last June occurred when the moon passed between the earth and sun. This month the earth passes between the sun and the moon. The latter then partly enters the earth's shadow, and the sunlight, which alone makes the moon visible, is partially cut off. This is the time of full moon, for a lunar eclipse can only occur then. Whenever the moon is full, it is nearly in line with the earth and sun, but not quite, it is either above or below the shadow. But then the entire lunar hemisphere on which the sun is shining is turned to our view, and we see the moon as a complete circle.

Because the sun is so much bigger than the earth, with a diameter of 864,000 miles as compared with 8,000 miles, the earth's shadow is conical, tapering off to a point about 859,000 miles away. This is well past the moon's distance of about 240,000 miles. This shadow is the so-called "umbra"—the region where the earth completely hides the sun. But around it is a larger region, the "penumbra," where the sun is only partially covered.

## Just After One

At 1:09 a. m., eastern standard time, on November 18, the moon enters the penumbra, at first producing no noticeable change in its appearance. But as it moves nearer the umbra, and the light from less than half the sun's disc is shining upon it, it will assume a darker color. At 2:37 a. m., E. S. T., the moon first makes contact with the inner shadow. Imagine the moon to be a clock dial, with 12 toward the Pole Star—the point of the contact is at approximately seven. At 3:19 a. m. the moon

has gone as far into the shadow as it will go, about 15 per cent of its diameter being covered.

The earth's shadow, thus projected on the southern part of the moon's disc, will be seen as an arc of a circle. It is always thus, excellent proof that the earth is a sphere, for nothing else could invariably cast a round shadow. Also, the shadow is not black, but a coppery red. This is because the earth's atmosphere acts as a prism to bend some sunlight into the shadow, shining on the moon even during a total eclipse. As the light passes through the atmosphere, some of its blue rays are scattered, and the remaining light is reddish. This reaches the eclipsed moon.

Then come the final phases of the eclipse. At 4 a. m. the moon is completely out of the umbra, at 5:29 a. m. it is out of the penumbra, and the eclipse is over.

## Famed Leonids

Besides the eclipse, November brings us one of the year's best showers of meteors, or "shooting stars," though its splendor will be rather lessened by the fact that it comes just a few days before the full moon, and the glare during most of the night will permit only the

brighter ones to be seen. These come in greatest numbers on the night of November 15, for then the earth crosses the great elliptical swarm in which the meteors, small things about as big as grains of sand, are moving around the sun. As they enter the atmosphere, the friction heats them, and they vanish in the flash of light that we see.

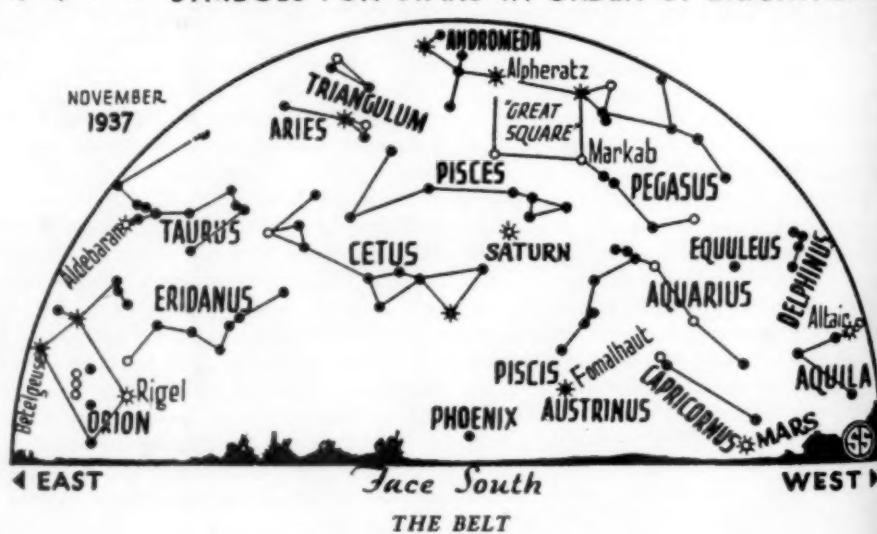
## Illusion

Because their paths are parallel, they seem to converge in the distance, in the direction from which they came. This happens to be towards the constellation of Leo, the lion, which rises about midnight, and they are called the Leonid meteors. Meteors are always seen in greater numbers after midnight than before, since then we are on the advancing side of the earth, and meet them head on. Were it not for the moon, one might see as many as one meteor a minute in the early morning hours of the 16th.

If you remain up during the month until nearly sunrise, either to see the eclipse or the meteors, you will be able also to see another planet. Venus is now a "morning star" rising about two hours before the sun, when it is seen low in the southeastern sky, still so brilliant that one need have no doubt as to its identity.

November marks the return to the evening sky of the finest of the winter

## ☼ \* ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS



The row of three stars in Orion is a guide to other heavenly bodies.



The two, big and little, are familiar favorites.

constellations, Orion, the warrior, which can be recognized from the three stars in a vertical row, forming his belt, seen low in the east. In the same group is Betelgeuse, north of the belt, and Rigel, to the south. Above these is Taurus, the bull, with red Aldebaran to indicate the eye of the animal. Further north, about as high, is Capella, in Auriga, the charioteer, and below him are the twins, Gemini.

All these, and others, are shown on the accompanying maps, in which the heavens are displayed as they appear at about 10 o'clock on the evening of November 1, 9 o'clock on the 15th and 8 o'clock at the end of the month. It will be seen that two planets are visible, Saturn high in the south, in Pisces, the fishes, and Mars, low in the southwest, in Capricornus, the sea-goat. Jupiter can also be seen in November, a little earlier in the evening. It is in Sagittarius, the constellation next to Capricornus to the west, which has descended by 10 p. m. on the first of the month. It is very bright, and there should be little difficulty in locating it.

#### First Magnitude Stars

Capella, Aldebaran, Betelgeuse and Rigel are all stars of the first magnitude. Four others are also shown. Low in the south is Piscis Austrinus, the southern fish, with Fomalhaut. Standing proudly erect in the west is the "northern cross," the constellation of Cygnus, the swan, in which Deneb shines at the top. Below, and to the right is Vega, in Lyra, the lyre. To the left, almost directly west, is the eagle, Aquila, with brilliant Altair.

Two other conspicuous figures, though containing no stars of the first magni-

tude, are seen, one in the north, the other in the south. The former is Cassiopeia, shaped like an inverted W. The four stars of the "great square" of Pegasus, so called despite the fact that one, Alpheratz, is in Andromeda, are high in the south. In addition Aquarius, the water carrier, can easily be located just above Fomalhaut. A little Y-shaped group, supposed to form a jar which the man is holding, is typical of this figure. Nearby, to the left, is Cetus, the great whale, in which an easily found quadrilateral of stars marks the animal's body.

The phases of the moon are shown on the table below. From about the 10th to the 20th of the month the evenings will be well supplied with moonlight. On November 6, at 5 a. m., the moon is farthest from the earth, or at "apogee." Its distance is then 252,300 miles. "Perigee," the time when it is closest of the month, comes at 8 a. m., E.S.T., on the 18th when it is but 222,190 miles away.

#### Phases of the Moon

	E. S. T.
New	Nov. 2 11:16 p. m.
First Quarter	Nov. 11 4:33 a. m.
Full	Nov. 18 3:10 a. m.
Last Quarter	Nov. 24 7:04 p. m.

Science News Letter, October 30, 1937

#### PHYSIOLOGY

### Chandler Lecturer Reports Clue to Old Age Riddle

A NEW clue to the riddle of why men grow old was presented to science by Dean William deB. MacNider of the North Carolina University Medical School.

Many complex tissues of animals, and

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therefore probably humans, are replaced as the animals age by cells that are less specialized. They are also, many of them, more resistant to poisons. Tissues of animals that have been severely poisoned and have recovered from their hurts are also less specialized than usual and are more resistant to poison. Add the two together and it spells a clue to what happens inside the body when the body grows old.

This was the gist of the second 1937 Chandler Memorial Lecture. Speaking in the same lecture hall used by Charles Frederick Chandler, pioneer American chemist who was born a hundred years ago, Dean MacNider summarized tissue experiments he has been conducting for several years.

Uranium, radioactive metal, and chloroform were the two poisons tried by the North Carolina medical man. Heavy doses of uranium salts were given young dogs in his laboratory. Many died, but some recovered. They were then starved and placed under chloroform. Unlike the ordinary dog, their livers were not seriously damaged by the chloroform, which is a violent liver poison.

The same results were obtained when old dogs (who were not first poisoned with uranium) were placed under chloroform, he stated. Examination of the old dogs' tissues and of the cells that had repaired the damage to the livers of the young dogs that had been poisoned revealed that they had one other thing in common besides the ability to resist chloroform.

They both had cells that were less specialized than usual.

*Science News Letter, October 30, 1937*

There has been no census taken in Tibet since the Chinese counted the people in 1737.

Government experiments indicate that clothes moths are not disturbed by air scented with cedar, dried lavender, tobacco, tar, pine oil, cedar oil, or camphor.

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### AVIATION

# Improved Propeller Design Will Cool Airplane Engines

## Speed of Airflow During Ground Checking of Engine Is Slower Than During Flight; New Feature Corrects

THE National Advisory Committee for Aeronautics has recently released results of study by its scientists on one of the problems of modern airplane operation; the overheating of airplane engines in low-speed flight and on the ground.

Before taking off, the pilot of an airplane must taxi into position and open the throttles of his engines wide while holding the airplane still with the brakes to check the satisfactory operation of the engines through observation of his instruments. During this process the speed of air flow over the engine is much slower than occurs in normal flight, since the airplane has no forward speed through the air. Likewise, after taking off the airplane must climb at a slow air speed before setting out on its journey at normal cruising speed, and in this climbing condition there is relatively little forward speed to provide air flow over the engines.

Under these low forward speed conditions, engines while developing almost full power have a bad tendency to overheat, owing to the well-known fact that the cooling depends largely on the speed of the air flow past the engine or radiator. The airplane designer must thus rely on the propeller to provide the necessary flow of cooling air during take-off which is normally provided by the much higher speed of flight in cruising.

Scientists Theodore Theodorsen, M. J. Brevoort, and George W. Stickle, of the N. A. C. A. laboratories, have found that conventional propellers with well-rounded cross-section at the point where they are attached to the propeller shaft are not effective in providing the desired flow of cooling air. Studies made in a large wind tunnel at Langley Field especially designed for full-scale studies of propellers show that propeller and spinner shield designs allowing the greatest efficiency of flight at cruising speeds are usually unfitted for cooling at air speeds well below cruising. Greater attention should be given to the airfoil, or cross-sectional, shape of the propeller

blades near the central hub, the N. A. C. A. scientists have concluded.

The three-man research team also designed a simple radial blower fan to be mounted ahead of the engine like an automobile fan, which when attached to the mounted engine and propeller greatly increased the efficiency of engine cooling. This combination, however, is not considered desirable for actual flight conditions because it increases the weight of the airplane and absorbs some of the engine power that could otherwise be used to produce a higher speed of flight.

A propeller design of proper cross-sectional shape, they point out, can accomplish almost as great an amount of engine cooling when the engines are developing nearly full power with the airplane at rest on the ground or flying at a low air speed.

*Science News Letter, October 30, 1937*

### ARCHAEOLOGY

## Chinese Minds Invented Arabian Nights Wonders

SOBER-minded Chinese—not Greeks living in Egypt—were the world's first alchemists, it appears.

Chinese thinkers tried to compound a pill of immortality, and to make silver and gold, long before Europe's alchemists went to work on similar fascinating problems.

More than that: Imagination of the Chinese alchemists soared out to conquer time and space. They devised ways for changing their forms at will, and for spiriting themselves over great distances in an instant. And what are those but powers of the "Arabian" jinni, who appear and vanish and perform wonders in the Arabian Night tales?

The theory that Europe got alchemy from China has been advanced before, but without getting much attention. Prevailing theories have gone no farther back than Greeks, Persians, and Arabs in tracing origins of this wonder-working art.

But there is new evidence. For two chapters of China's most revered treatise

on alchemy have been translated for the first time into a European language. They are published by the American Academy of Arts and Sciences. The treatise, by a famous scholar named Ko Hung, was written about 317 to 322 A. D., which is before alchemy was thought of in lands farther west. Even when Ko Hung wrote, alchemy was already 600 years old in China.

One main goal of Chinese alchemists was to escape the misery of death. No less than nine potent medicines would confer supernatural immortality, if only the seeker succeeded in making

any one of them in just the right way.

One medicine for immortality carried the power of enabling the eater to walk in fire and water uninjured. Another kind conferred advantages including: "Whoever has his money painted with it will have it back on the same day he spends it." If an alchemist should eat another kind, "there will come angels and fairies to wait on him."

In seeking immortality, China's alchemists aimed higher than Europe's alchemists, who were contented with a mere extension of life.

*Science News Letter, October 30, 1937*

#### MEDICINE—PUBLIC HEALTH

## Laboratories and Physicians Urged to Join Influenza War

### Family Doctors Urged to Send Blood Samples Taken During Attack and After Recovery to Aid Campaign

**N**EXT battle in the war against influenza is going to be waged in the state laboratories of health.

If it is not, everyone is going to go right on having flu, or living under its threat, every winter for many years to come.

Scientists in research laboratories at universities or places such as the Rockefeller Institute have made great strides in the fight against this widespread and dangerous disease. They have, for instance, isolated a virus which was the cause of epidemics of influenza in many different parts of the world. This virus is being used for diagnostic tests, and has been used in experimental vaccination with encouraging results.

But this does not mean that influenza has been conquered. This particular virus may not be the cause of all the sickness that is at present diagnosed as influenza. The new vaccine, even if available in sufficient quantities, may not give protection against the disease in the next epidemic because that epidemic may be influenza of a different type, that is, caused by a different virus.

We may have an influenza epidemic again this coming winter. No one can say positively whether we will or not. At one time, scientists believed that flu epidemics came in 3-year cycles. Now they are not at all sure. There seems to be some flu every winter somewhere. They do not know, either, what relationship there is between influenza epidemics in one country or locality and

the pandemics of influenza that sweep around the world, as the one in 1918 did.

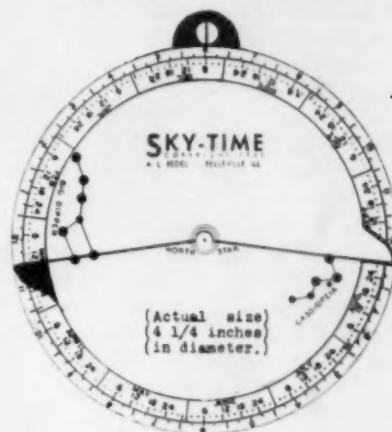
An attack of influenza seems to protect you against another attack, at least for a short time. Just how long this protection lasts, and whether the protection or immunity given by the new vaccine lasts any longer, are other problems that must be solved before influenza can be controlled.

What happens to the influenza virus between epidemics? Is there an animal reservoir, as there is for typhus fever and plague? Or does the virus become too weak to cause disease, and then after a period grow stronger and more virulent? Scientists would like to be able to answer these questions with facts. In the course of time, many years, perhaps, they will.

But the answers can be found much faster, and influenza brought under control much sooner, if state health department laboratories join in the fight, in the opinion of Dr. Wilbur A. Sawyer, director of the Rockefeller Foundation's International Health Division. At the meeting of the American Public Health Association he told how and why these laboratories are needed in a new way to help fight influenza and other virus-caused diseases, such as yellow fever and rabies.

These laboratories, heretofore, have occupied themselves chiefly with carrying on the fight against disease along lines of strategy (Turn to next page)

## Tell Time By The Stars

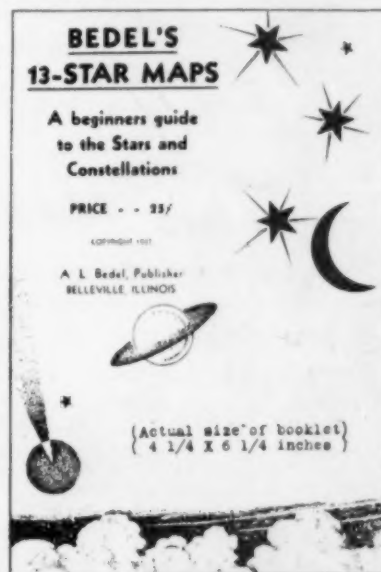


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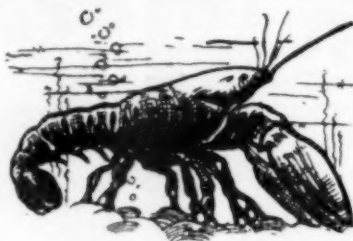
laid down after other scientists have discovered causes and methods. Dr. Sawyer would like to see them take an active part in the research against the virus diseases, as the health departments of Minnesota and California and the Connaught Laboratories in Toronto are already doing.

Your own doctor might help in the new warfare against flu by sending to the state health laboratory samples of your blood taken when you have an attack of influenza and after you have recovered. At the laboratory these can be tested on mice to determine whether protective antibodies, part of the body's flu-fighting forces, developed during the attack and how long they remained in your blood after you got well. Where a university or research foundation laboratory can test a few hundred such samples at most, the state laboratory can test thousands and compare the samples from patients in one part of the state with those in another. This will produce a large mass of information much faster than it could be obtained otherwise.

Another step the state laboratories of health can take is to study strains of influenza virus in the periods between epidemics and see how it behaves. They could also isolate new strains of the virus during epidemics, and thus help to settle the problem of whether all influenza is caused by the same virus or whether there are several causative viruses. They may even discover other viruses that may play a part in causing colds apart from those that cause influenza. When such information has been obtained, methods can probably be found to control colds and flu.

*Science News Letter, October 30, 1937*

Even the dinosaurs were not so heavy as the biggest whales.



### When Is a Shellfish?

"FISH" is used, with rather lamentable looseness, to designate almost anything found in the sea or freshwater bodies, even including whales and porpoises. (Seals we excuse from this catchall classification, because they come ashore, and can bark like dogs.) But even stranger is the designation "shellfish," which in very general usage is taken to mean every kind of sea creature (at least all edible kinds) that are not obviously "real" fish with scales and fins.

Practically all forms of seafood that are not "real" fish belong to two great zoological groups, or phyla, which are not related to each other at all except insofar as both are animals. Yet we keep on lumping both groups under the one-head of "shellfish."

The first, and conventionally "lower" group are the mollusks. They include such familiar table delicacies as oysters, clams, mussels, abalones, and (for Gallic gourmets) snails. All these forms, and their many inedible relatives, are housed in shells of their own secreting, made of calcium carbonate, the mineral

of limestone, chalk, and marble. They might thus have a proper claim on the name of shellfish; for they have shells, even though they are fish only by courtesy of the fact that they come out of the water.

The second group in this unscientific classification include the familiar lobster, crab, and shrimp, and (again in France) the big edible European crayfish. They are probably "lumped" in the popular shellfish terminology because they are cased in solid, hard suits of natural armor. However, this might perhaps be designated as a crust rather than a shell. On this basis, the professors have the better of it, for they call water-animals of this class Crustacea.

If we must retain the not-very-exact term "shellfish" (and it is likely we shall do so), it might be a good idea to bestow it exclusively on the edible mollusks and to give the edible crustacea a name they can call their own. How about "Crusties"?

Of course, there are many genera and species in each phylum that are not edible and are hence usually neglected by the average citizen. Yet some of them are important. Many of the inedible mollusks yield prized ornamental materials — pearls, mother-of-pearl, and brightly colored snail-shells used in jewelry. The famed Tyrian purple of antiquity was extracted from a mollusk.

Mollusks also are the slugs that raid our gardens, and the octopus, squid, and cuttlefish of the ocean, though these have no visible shells.

*Science News Letter, October 30, 1937*

### PHOTOGRAPHY

## Bare Branches of Trees Warn of Coming of Winter

See Front Cover

WITH lingering leaves accenting the delicacy of the outlines traced by their branches against the clouded sky, the trees of autumn make an excellent subject for the hiking photographer.

The black walnut tree pictured on the cover of this week's SCIENCE NEWS LETTER was taken with the camera of Fremont Davis, Science Service staff photographer.

*Science News Letter, October 30, 1937*

A typewriter for writing musical scores has been invented in Germany.

Painted fingernails were an ancient fashion of women in Near Eastern civilizations, but apparently they never gained wide favor in the western world until modern times.

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# •First Glances at New Books

Additional Reviews  
On Page 288

## Psychiatry

CONCEPTS AND PROBLEMS OF PSYCHOTHERAPY—Leland E. Hinsie—*Columbia Univ.*, 199 p., \$2.75. Dr. Nolan D. C. Lewis in his foreword calls this text "an honest assay of the applications of psychological knowledge to various fundamental problems of psychiatry." The author is professor of clinical psychiatry, College of Physicians and Surgeons, Columbia University, and assistant director, New York State Psychiatric Institute and Hospital.

*Science News Letter, October 30, 1937*

## Sociology

AMERICANS IN PROCESS: A STUDY OF OUR CITIZENS OF ORIENTAL ANCESTRY—William Carlson Smith—*Edwards*, 359 p., \$3. Here is the report of a study of the second generation of oriental ancestry. This study had its inception in the Survey of Race Relations on the Pacific Coast and was continued in Hawaii.

*Science News Letter, October 30, 1937*

## Naval History

BRITTANY PATROL: THE STORY OF THE SUICIDE FLEET—H. Wickliffe Rose—*Norton*, 367 p., illus., \$3.50. A summary of the adventures of the U. S. Naval Coast Patrol along the shores of Brittany during the World War.

*Science News Letter, October 30, 1937*

## Child Psychology

CARING FOR THE RUN-ABOUT CHILD—Rhoda W. Bachmeister—*Dutton*, 263 p., illus., \$2.50. Written for mothers by a woman who combines the qualifications of mother, nursery-school teacher and teacher of a course for parents in a magazine.

*Science News Letter, October 30, 1937*

## Radio

EDUCATIONAL BROADCASTING: PROCEEDINGS OF THE FIRST NATIONAL CONFERENCE ON EDUCATIONAL BROADCASTING,

## •RADIO

November 4, 3:30 p. m., E.S.T.

LIVING UNDER THE SEA—Capt. E. W. Brown of the U. S. Naval Medical School.

November 11, 3:30 p. m., E.S.T.

WIVES BY THE DOZEN—IN AFRICA—Rev. Edward Ward of the Catholic University of America.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.

HELD IN WASHINGTON, D. C., ON DECEMBER 10, 11, AND 12, 1936—C. S. Marsh, ed.—*Univ. of Chicago*, 463 p., \$3. At this conference educators and individuals actively connected with radio in various ways had their say. Their opinions and suggestions, as well as the facts they presented, provide much useful information for anyone interested in this highly controversial problem of how to be informative via the radio waves.

*Science News Letter, October 30, 1937*

## Astronomy

ASTRONOMY FOR THE MILLIONS—G. Van Den Bergh; Trans. by Joan C. H. Marshall and Th. de Vrijer—*Dutton*, 370 p., illus., \$3.50. A Dutch astronomer has here prepared his version of the elements of astronomy for any intelligent layman. The volume has been translated from the Dutch into first-rate idiomatic English. The book ranks with the works of Jeans and Eddington.

*Science News Letter, October 30, 1937*

## Chemistry

NEW WORLD OF CHEMISTRY (Rev. ed.)—Bernard Jaffe—*Silver, Burdett*, 596 p., \$1.80. A new high-school textbook in general chemistry which seeks to emphasize always the scientific methods and the ideals of scientific inquiry. The author has tried—and succeeded—in keeping a balance between the necessary factual material of chemistry and the stimulating details relating to the great achievements of men and women of science.

*Science News Letter, October 30, 1937*

## Chemistry

LABORATORY MANUAL OF GENERAL CHEMISTRY (4th ed.)—Harry N. Holmes—*Macmillan*, 299 p., \$1.50. This laboratory manual is a supplementary text to the author's "General Chemistry" and his shorter "Introductory Chemistry," which have now been in use for some time.

*Science News Letter, October 30, 1937*

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# • First Glances at New Books

Additional Reviews  
On Page 287

## Architecture

THE 1938 BOOK OF SMALL HOUSES—The editors of the Architectural Forum—*Simon & Schuster*, 197 p., illus., \$1.96. Here is the newest issue in the series of small house books which provides each year information that is vital to anyone contemplating building dwellings in the lower price ranges.

*Science News Letter, October 30, 1937*

## Chemistry

FUNDAMENTALS OF CHEMISTRY (4th ed.)—L. Jean Bogert—*Saunders*, 449 p., illus., \$2.75. Although originally planned to provide information for nurses, the scope of this text has been widened continually until now it fits the needs of schools of home economics and other places where surveys in chemistry are required.

*Science News Letter, October 30, 1937*

## Electricity—Juvenile

HOW TO MAKE ELECTRIC TOYS—Raymond F. Yates—*Appleton-Century*, 199 p., illus., \$2. For boys of high-school age who are beginning to be interested in electricity, this book of simple equipment demonstrates the principles of this field of science.

*Science News Letter, October 30, 1937*

## Physics

MAN'S PHYSICAL UNIVERSE—Arthur Talbot Bawden—*Macmillan*, 812 p., illus., \$3.50. A text for survey courses in physical science. Structure of the universe, geology, weather, the harnessing of energy, electricity and magnetism and chemical elements, are a few of the structural units of the book.

*Science News Letter, October 30, 1937*

## Science

WORKBOOK TO GENERAL SCIENCE FOR TODAY—Ralph W. Watkins and Ralph C. Bedell—*Macmillan*, 144 p., 60 c. Detailed questions for study based on the high school text by the same authors.

*Science News Letter, October 30, 1937*

## Chemistry

ACID-BASE INDICATORS—I. M. Kolthoff, trans. by Charles Rosenblum—*Macmillan*, 414 p., \$7.

*Science News Letter, October 30, 1937*

## Chemistry—Technology

THE CHEMISTRY AND TECHNOLOGY OF RUBBER—Carroll C. Davis and John T. Blake, eds.—*Reinhold*, 941 p., \$15. By the device of distributing chapters among many competent authors, this very large volume on the chemistry and technology

of rubber in all its phases was made possible. Valuable to all engineers and scientists in this field of research, it is too technical for the lay reader.

*Science News Letter, October 30, 1937*

## Crafts

WORKING WITH TOOLS FOR FUN AND PROFIT—A. Frederick Collins—*Appleton-Century*, 228 p., \$2. This book will be helpful not only to youngsters who like to work with their hands, but also to that growing group of men who find an avocation at their work bench in the basement.

*Science News Letter, October 30, 1937*

## Mineralogy

MINERAL RAW MATERIALS: SURVEY OF COMMERCE AND SOURCES IN MAJOR INDUSTRIAL COUNTRIES—Staff of Foreign Minerals Division of U. S. Bureau of Mines—*McGraw-Hill*, 342 p., \$5. Just as the Minerals Yearbook surveys the mineral industry in the United States, so this particular volume surveys the same topic on a world basis.

*Science News Letter, October 30, 1937*

## Chemistry

QUALITATIVE ANALYSIS (2d rev. ed.)—H. V. Anderson and T. H. Hazelhurst—*Prentice-Hall*, 280 p., \$2.25. In this text written by professors at Lehigh University, all the theoretical material has been grouped into the first eight chapters.

*Science News Letter, October 30, 1937*

## Mathematics—Games

LE BACCARA—Georges Le Myre—*Hermann et Cie, Paris*, 204 p. 12 fr. Baccarat, as a game of pure chance, is concerned with probabilities, which are considered in this treatise.

*Science News Letter, October 30, 1937*

## Engineering

MIGHTY ENGINEERING FEATS—Harriet Salt—*Penn Pub. Co.*, 308 p. illus., \$2.50. Here is the story of the ten greatest American engineering feats. The first transcontinental railroad, the Panama Canal, Boulder Dam, the Holland Tunnel; these are a few of the topics chosen for a detailed presentation in this technological history.

*Science News Letter, October 30, 1937*

## Physics

A LABORATORY GUIDE AND WORKBOOK TO ACCOMPANY MILLIKAN, GALE, AND COYLE'S NEW ELEMENTARY PHYSICS—Burton L. Cushing—*Ginn*, 241 p., 76 c.

*Science News Letter, October 30, 1937*

## Zoology

CANADIAN PACIFIC FAUNA. 1. PROTOZOA—G. H. Wailes, 14 p., illus., 10 c; CANADIAN ATLANTIC FAUNA. 3a. Hydrozoa—C. McLean Fraser, 46 p., illus., 35 c; 10m. Decapoda—Mary J. Rathbun, 38 p., illus., 30 c; 12. Chordata (lampreys to chimaeroids)—Henry B. Bigelow and W. C. Schroeder, 38 p., illus., 30 c. Parts of a comprehensively planned series, of great interest to systematic zoologists. Obtainable directly from the Biological Board of Canada, Toronto.

*Science News Letter, October 30, 1937*

## Photography

MAKING AMATEUR PHOTOGRAPHY PAY—A. J. Ezickson—*National Library Press*, 134 p., illus., \$1.

*Science News Letter, October 30, 1937*

## Model Making

TRICKS, TOYS AND TIM: A BOOK OF MODEL-MAKING AND MAGIC—Kreigh Collins—*Appleton-Century*, 238 p., illus., \$2. Here is a book which tells how to make both soldiers and a fort, fire department and other models, and includes also some simple tricks of magic which can be used to amuse children and which may be performed by them.

*Science News Letter, October 30, 1937*

## Chemistry

CATALYSIS: FROM THE STANDPOINT OF CHEMICAL KINETICS—Georg-Maria Schwab, translated by Hugh S. Taylor and R. Spence—*Van Nostrand*, 357 p., \$4.25. The place of catalysis in present day chemistry has become so important that a translation of this German text is of real service to American scientists.

*Science News Letter, October 30, 1937*

## Mathematics

SCRIPTA MATHEMATICA FORUM LECTURES—Cassius Jackson Keyser, David Eugene Smith, Edward Kasner and Walter Rautenstrauch—*Yeshiva College*, 94 p., \$1. The history of mathematics, new terms which the mathematicians are now using, and the social aspects of mathematics as applied to science and engineering are covered.

*Science News Letter, October 30, 1937*

## Engineering

SYMPOSIUM ON LUBRICANTS (1937)—*American Society for Testing Materials*, 89 p., \$1.25. Addresses delivered at the American Society for Testing Materials symposium, in 1937, of interest to scientists and engineers working in the specific field of lubrication.

*Science News Letter, October 30, 1937*